



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,353	02/27/2002	Ken Yoshioka	503.38156VX1	1842
20457	7590	09/01/2004	EXAMINER	
ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-9889			MOORE, KARLA A	
			ART UNIT	PAPER NUMBER
			1763	

DATE MAILED: 09/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/083,353	Applicant(s) YOSHIOKA ET AL. S.C.	
	Examiner Karla Moore	Art Unit 1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This office action is meant to replace the office action mailed 16 June 04.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,769,952 to Komino in view of U.S. Patent No. 5,334,251 to Nashimoto and U.S. Patent No. 6,048,435 to DeOrnellas et al.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Komino discloses an apparatus for processing a specimen substantially as claimed and comprising: an etching process unit (Figure 1, 10A-C; column 5, rows 48-59), which is supplied with a gas to produce plasma (column 12, rows 9-12); a rinsing unit (18A and 18C; column 6, rows 7-10); and a dryer unit (18B and 18D; column 5, rows 48-59) for drying. Komino further teaches that the operations in the etching process unit and the

Art Unit: 1763

rinsing and/or drying unit can take place in succession (column 6, rows 10-20).

Additionally, the apparatus of Komino may be constructed to comprise plural deposition units, which may be used continuously, along with the etching, rinsing and drying units (column 5, rows 48-51). This fairly suggests that the apparatus would be capable of processing a substrate with multiple layers.

5. However, Komino fail to explicitly teach the apparatus capable of processing a specimen while controlling the temperature of the substrate.

6. Nashimoto teaches the use of a temperature control mechanism for semiconductor processing apparatus for the purpose accurately controlling the temperature of a substrate during processing because the results of processing may depend largely upon the temperature of the substrate being processed (column 1, rows 20-26; column 1, row 55 through column 2, rows 13 and column 5, row 56 through column 6, row 14).

7. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a temperature control mechanism in any of the types of substrate processing apparatus (etching, rinsing, drying) in Komino in order to accurately control the temperature of the substrate during processing because results of processing may depend largely upon the temperature of the substrate being processed as taught by Nashimoto.

8. Examiner notes that the specific temperature to which a process is controlled is a processing parameter that would depend on the type of processing, type of substrate and type of processing material being used. One of ordinary skill in the art would immediately recognize that, depending on the intended processing method, ideal-processing conditions would need to be established. Regarding the article to be worked

upon and the specific composition of the layer on the substrate, the courts have ruled that the inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims. In *re Young*, 75 F. 2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F. 2d 937, 136 USPQ 458, 459 (CCPA 1963)). Also, regarding the processing materials, the courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. Ex parte Thibault, 164 USPQ 666, 667 (Bd. App. 1969). Further, with respect to the inclusion of these aforementioned method limitations, the courts have ruled that the courts have ruled that a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

9. In addition with respect to the invention of claim 1, Komino further fails to specifically teach that the etching apparatus is capable of supplying a low pressure, high density, low ion energy plasma.

10. DeOrnellas et al. teach using a low pressure, high density, and low ion energy plasma for delivering superior etching results (column 4, rows 43-67).

11. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an apparatus capable of plasma processing conditions such as low pressure, high density and low ion energy in Komino in order to deliver superior etching results which are required for the latest semiconductor products as taught by DeOrnellas et al.

12. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komino and DeOrnellas et al. as applied to claim 1 above, and further in view of U.S. Patent No. 5,303,671 to Kondo et al. and Japanese Patent No. 60-183996 to Kameyama.

13. Komino and DeOrnellas et al. disclose the invention substantially as claimed and as described above.

14. Additionally, Komino discloses: an atmospheric loader (20); a vacuum transport chamber (14) having a vacuum transport robot (16) therein; and unload and loadlock chambers (130A and 130B) connecting between said atmospheric loader and said vacuum transport chamber for delivering the specimen via an atmospheric transport unit (22), wherein said vacuum transport chamber is connected to all of the etching process chambers of said etching process unit, and said atmospheric loader is connected via said atmospheric transport unit to said rinsing unit and drying unit.

15. With respect to claim 3, Komino teaches that any number of the three processing chambers, 10A-C, may be etching chambers (column 5, rows 48-59).

16. However, Komino and DeOrnellas et al. fail to teach a rinsing cup in the rinsing unit and a hot plate in the drying unit.

17. Kondo et al. teach the use of a hot plate for the purpose of heating/drying a specimen after washing (column 8, rows 28-30).

18. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a hot plate in the drying unit of Komino in order to heat/dry a specimen after washing as taught by Kondo et al.

Art Unit: 1763

19. Kameyama teaches the use of a rinsing cup for the purpose of reducing the adhesion of dust, to use only a small amount of treating liquid and to equalize the extent of a treatment (purpose and constitution).

20. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a rinsing cup in the rinsing unit of Komino in order to reduce adhesion of dust, use only a small amount of treating liquid and to equalize the extent of treatment as taught by Kameyama.

Response to Arguments

20. Applicant's arguments, see Paper No. 9, filed 11/25/03, with respect to the rejection(s) of claim(s) 1-3, using a reference that has a filing date after the present application's priority date and therefore is not considered prior art, have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Nashimoto and DeOrnellas et al., which does have a valid prior art date and provide similar teachings. Nashimoto fairly teaches controlling a temperature of a substrate during processing to an ideal temperature appropriate for an intended method, workpiece and processing materials. DeOrnellas et al. fairly teach using an apparatus capable of supplying a low pressure, high density, and low ion energy plasma for processing current semiconductor technology.

21. Examiner would like to again note that the present invention is drawn to an apparatus, not a method. If Applicant wishes to claim an invention drawn to a method of using the apparatus or a method of processing using specific materials, Applicant should

Art Unit: 1763

file a related application. In the present Application, prior art that is capable of Applicant's intended uses will continue to be applied.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karla Moore whose telephone number is 571.272.1440. The examiner can normally be reached on Monday-Friday, 8:30am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571.272.1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



km

18 August 2004



Parviz Hassanzadeh

Primary Examiner

Art Unit 1763